

# Pressurised Liquid Only Sewer (Prelos): The Subdivision Solution

## New Zealand Examples

Serving both Councils and private developers, Innoflow Technologies NZ Ltd brings over 30 years in design, build and operation expertise in decentralised wastewater schemes for rural and unsewered communities around New Zealand.

The use of pressurised liquid only sewers (Prelos™) which convey primary treated liquid from on-lot Prelos processor tanks to either communal AdvanTex wastewater treatment plants or council sewers provide a number of many benefits to land developers and homeowners, including;

- ✓ Allowing more sections to be developed compared to going to individual on-site systems
- ✓ Maximises value of sections by installing wastewater systems and fields away from individual sections



- Developer only pays for half of the scheme, by having primary treatment tanks on-lot which is paid by homeowner as part of their house build



- System is scalable, meaning it can be installed in stages according to actual growth, thereby reducing upfront costs



- Scheme is simple in design and resilient to fluctuating usage



- Easy retrofit options for sites with existing septic tanks or infrastructure



- Low ongoing operating costs and high quality components with long warranties (e.g. 10-year warranty on Prelos pumps)



- Minimal visual impact and no noise



- Looks favourably on during consenting



There are over 60 of these Prelos schemes (formerly known as STEP (septic tank effluent pump) systems) operating around New Zealand, with hundreds more around the world, including Australia and United States of America. This document presents several New Zealand case studies with a summary of design information and scheme components



# Lakeside Estate Subdivision

(Queenstown, New Zealand)

36 Lots



Figure 1- AdvanTex wastewater treatment plant that services the existing Lakeside Estate subdivision

**Existing community**  
**Installation date: 201**  
**Client: Homeowner association**

**Number of lots and design volume:**  
36 lots, 1,000 L/day/lot, 36,000 L/day

**Scheme summary:**  
Existing gravity sewer network and pump station  
AX400 AdvanTex wastewater treatment plant  
5,150 square meters of pressure compensating dripline

**Design effluent quality**  
BOD<sup>5</sup> <20 mg/L  
TSS <30 mg/L  
TN <20 mg/L  
E.coli <1000 cfu/100 mLHartwell



Figure 2-Aerial shot of lakeside community (credit: ACH Consulting)



# Hartwell Lifestyle Subdivision

## (Palmerston North, New Zealand)

### 49 Lots



Figure 4-Photo from developed site at Hartwell Subdivision  
(credit: waterfordpress.co.nz)

**Greenfield development**  
**Installation date: 2016 (staged development)**  
**Client: Private developer**

**Number of lots and design volume:**  
21 lots, 900 L/day/lot, 18,900 L/day

#### Scheme summary:

21 Prelos tanks (installed by homeowner as part of house build) Liquid only pressure sewer  
AX200 AdvanTex wastewater treatment plant  
6500 square meters of pressure compensating dripline

#### Design effluent quality

BOD<sup>5</sup> <15 mg/L  
TSS <15 mg/L  
TN <30 mg/L



Figure 3-Aerial shot of subdivision (credit: central district surveys)



# Peak Road Subdivision

(Auckland, New Zealand)

51 Lots



Figure 6-Photo of land application area which is irrigated by treated effluent from the Peak Road subdivision

**Greenfield development**  
**Installation date: 2014**  
**Client: Private developer**

**Number of lots and design volume:**  
51 lots, 1,080 L/day/lot, 55,080 L/day  
1 community church, 250 L/day  
Farm Barn, 1,080 L/day

**Scheme summary:**  
51 Prelos tanks (installed by homeowners as part of house builds)  
Liquid only pressure sewer  
AX600 AdvanTex wastewater treatment plant  
18,805 square meters of pressure compensating dripline

**Design effluent quality**  
BOD5 <15 mg/  
TSS <15 mg/L  
TN <30 mg/L (12 month average)  
Faecal Coliforms <200 cfu/100 mL



Figure 5-Aerial shot of the Peak Road subdivision



# Ongare Point Coastal Community

(Bay of Plenty, New Zealand)

58 Lots



Figure 7-Photo of AdvanTex wastewater treatment plant installed to service the Ongare Point community

## Established community

**Installation date:**

**Client: Western Bay of Plenty District Council**

## Number of lots and design volume:

58 lots, 690 L/lot, 40,000 L/day

## Scheme summary:

58 STEP tanks (installed at each house, including retrofits)

Pressurised liquid only sewer

AdvanTex® AX400 Wastewater Treatment Plant

55,400 square meters of pressure compensating dripline laid through bush

## Design effluent quality

BOD: <20 mg/L

TSS: <20 mg/L

E.coli: <500 mpn/100mL



Figure 8-Aerial photo of the existing Ongare Point community

Our Office

311a Postman Road Dairy Flat,  
Auckland 0794, New Zealand

Phone

09 426 1027

0800 466 635 (0800innoflow)



# Sylvan Estate Subdivision

(Auckland, New Zealand)

65 Lots



Figure 7-Photo of AdvanTex wastewater treatment plant installed to service the Ongare Point community

**Greenfield development**  
**Installation date: 2019**  
**Client: Private developer**

**Number of lots and design volume:**  
65 lots, 900 L/day/lot, 58,500 L/day

**Scheme summary:**  
65 Prelos tanks (installed as part of house builds)  
Liquid only pressure sewer  
AX500 AdvanTex wastewater treatment plant  
14,625 square meters of pressure compensating dripline

**Design effluent quality**  
BOD5 <20 mg/L  
TSS <20 mg/L  
TN <30 mg/L  
NH3-N <10 mg/L  
TP <15 mg/L  
Faecal Coliforms <200 cfu/100 mL

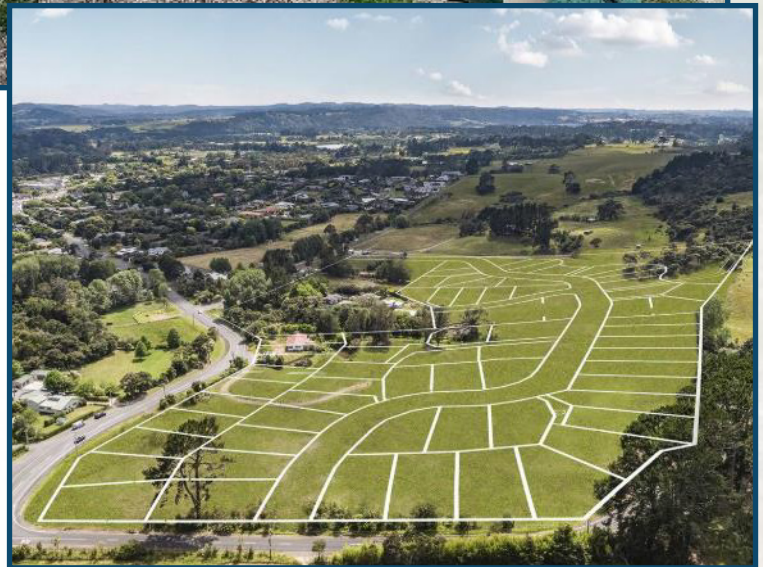


Figure 8-Aerial photo of the existing Ongare Point community



# Opito Bay Community (Coromandel, New Zealand)

## 76 Lots



Figure 12-Photo of AdvanTex wastewater treatment plant at Opito Bay

### Greenfield development

**Installation date: 2019**

**Client: Private developer,  
then Thames Coromandel District Council**

### Number of lots and design volume:

76 lots, 1,560 L/day/lot, 119,000 L/day

### Scheme summary:

76 Prelos tanks (installed as part of house builds)

Liquid only pressure sewer

AX900 AdvanTex wastewater treatment plant

14,108 square meters of pressure compensating dripline



Figure 11-Aerial photo of Opito Bay and location of planned subdivision

### Design effluent quality

BOD5 <20 mg/L

TSS <20 mg/L

TN <30 mg/L

NH3-N <10 mg/L

TP <15 mg/L

Faecal Coliforms <200 cfu/100 mL

### Our Office

311a Postman Road Dairy Flat,  
Auckland 0794, New Zealand

### Phone

09 426 1027

0800 466 635 (0800innoflow)



# Matauri Bay Subdivision

(Far North, New Zealand)

154 Lots



Figure 13-Photo of AdvanTex wastewater treatment plant at Matauri Bay



Figure 14-Photo of communal land application area at Matauri Bay

**Greenfield development**  
**Installation date: 2007**  
**Client: Private developer**

**Number of lots and design volume:**  
154 lots, 1,075 L/lot, 166,000 L/day

#### **Scheme summary:**

154 STEP tanks (to be installed by homeowner as part of build)

Pressurised liquid only sewer

AdvanTex® AX1600 Wastewater Treatment Plant

55,400 square meters of pressure compensating dripline laid through bush

#### **Design effluent quality**

BOD: <20 mg/L

TSS: <30 mg/L



# Waipataki Beach Community

(Hawkes, New Zealand)

76 Lots



## Greenfield development

**Installation date: 2006**

**Client: Hastings District Council**

## Number of lots and design volume:

76 lots, 1,000 L/day/lot, 76,000 L/day

## Scheme summary:

76 Prelos tanks (installed as part of house builds)

Liquid only pressure sewer

AX600 AdvanTex wastewater treatment plant

15,200 square meters of pressure compensating dripline



*Figure 15- Photo of Waipataki Beach and wastewater treatment plant to service the community*

## Design effluent quality

BOD5 <20 mg/L

TSS <30 mg/L

Our Office

311a Postman Road Dairy Flat,  
Auckland 0794, New Zealand

Phone

09 426 1027

0800 466 635 (0800innoflow)



# Piopio Community (Waikato, New Zealand)

198 Lots



Figure 16-Photo of AdvanTex wastewater treatment plant at Piopio Community

## Established community

**Installation date: 2007**

**Client: Waitomo District Council**

## Number of lots and design volume:

198 lots, 1,145 L/lot, 227,000 L/day (including school)

## Scheme summary:

198 STEP tanks (installed at each house)

Pressurised liquid only sewer

AdvanTex® AX1200 Wastewater Treatment Plant

Rock outfall

Discharge into Mokau River

## Design effluent quality

BOD5 <20 mg/L

TSS <30 mg/L

TKN <30 mg/L

NH3-N <10 mg/L

TP <15 mg/L



Figure 17-Photo of Mokau River where highly treated effluent is discharged to



# Lake Rotoma Lakeside Community

(Rotorua, New Zealand)

234 Lots



Figure 19-Photo of on-lot tank being installed

## Established community

**Installation date: 2018**

**Client: Rotorua Lakes Council**

## Number of lots and design volume:

234 lots, 1,000 L/day/lot, 234,000 L/day

## Scheme summary:

234 STEP tanks (installed at each house)  
connected to council mains  
and council wastewater treatment system

## Design effluent quality

Primary treated wastewater



Figure 18-Aerial photo of Lake Rotoma and surrounding area

Our Office

311a Postman Road Dairy Flat,  
Auckland 0794, New Zealand

Phone

09 426 1027

0800 466 635 (0800innoflow)



# Mahia Beach Township

(Hawkes Bay, New Zealand)

375 Lots



Figure 21-Photo of on-lot tanks



Figure 20-Aerial photo of Mahia Beach township

**Established community**  
**Installation date: 2015**  
**Client: Wairoa District Council**

**Number of lots and design volume:**  
375 lots, 1,000 L/day/lot, 375,000 L/day

**Scheme summary:**  
375 concrete STEP tanks (installed at each house) connected to council mains

**Design effluent quality**  
Primary treated wastewater



# Jacks Point

## (Otago, New Zealand)

### 750 Lots



Figure 22-Photo of 1 of 3 decentralised wastewater treatment plants at Jacks Point (N567 plant)

**Greenfield, expanding development**  
**Installation date: 2006-current**  
**(wastewater scheme continues to be upgraded as the development grows)**  
**Client: Private developer**



Figure 23-Picture of an installed on-lot tank at Jacks Point

#### Number of lots and design volume:

Planned 750 lots, of which 484 homes are built and connected to scheme across 7 neighbourhoods (N1 to N7). Also includes connection from golf club, restaurant and offices.

#### Scheme summary:

484 (out of planned 750) STEP tanks (installed at each house)  
Pressurised liquid only sewer  
3 wastewater treatment plants and 3 land application areas servicing 3 clusters of neighbourhoods;  
N1-N4 plant: 412 lots connected  
N2-N3 plant: 164 lots connected  
N5, 6,7 plant: 182 lots connected  
76,000 square meters of pressure compensating dripline

#### Design effluent quality

BOD: <15 mg/L  
TSS: <20 mg/L  
TN: <20 mg/L  
TP: <12 mg/L E.coli: <10,000 mpu/100mL





Contact **Innoflow** for Design and Pricing Information  
**+64 9 426 102** or **info@innoflow.co.nz**  
should you require a design and cost for a wastewater system for your site.